OHIO ACADEMY OF SCIENCE
106TH ANNUAL MEETING

GEOLOGY FIELD TRIP

WETLANDS, PLEISTOCENE GEOLOGY AND MIDDLE PALEOZOIC STRATIGRAPHY OF WESTERN WOOD AND SOUTHWESTERN LUCAS COUNTIES, OHIO

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APRIL 6, 1997

ROAD LOG

mileage	
0	Leave Parking Lot R, Bowling Green State University Go north to Poe Road Turn left (west) on Poe Road, proceed through 3 traffic signals (3rd light just beyond Wood County Fairgrounds) Turn left (south) on next road - Wintergarden Road. Proceed south.
3.3	Sand visible at construction site on right; low rise ahead is low sand ridge
4.4	Sand Ridge Road, turn right (west). Note lower flat land off ridge to right and left, and occasional sandy soils along road.
that	Stop and cross U.S. 6. Note that Sand Ridge Road is not always on a ridge, but sand is abundant. Ahead are houses and trees on ridge located on higher, well-drained, infertile sites. Ridge varies in height; low spots either lacked sand deposit to begin with, sand was washed away by currents in the ice-dammed lake, or sand was removed by excavation. All 3 interpretations are undoubtedly true somewhere.
7.0	**STOP 1** on Sand Ridge Road. Note that land to north and south is flat, and lacks sand. This must have been an offshore sand bar in the ice-dammed lake. This is the southern of 2 west-oriented sand streams related to higher land at Bowling Green (making dry land in the old Black Swamp, which is why people located the town there). This narrower, steeper ridge to the south contrasts with a much broader, more gentle northern "ridge" (not really ridge-shaped) (see separate map). Apparently both are composed of sand eroded by shallow waters of the ice-dammed lake at the Bowling Green bedrock high, and extended this way because of strong ENE winds coming off the glacial ice located to the ENE.

The main ice-dammed lakes in the Erie basin may be summarized as:

Lake Maumee	mainly at 780' elevation
Lake Whittlesey	mainly at 735' elevation
Lake Arkona	mainly at 690-710' elevation (preceded Whittlesey)
Lake Warren	mainly at 690',682', and 675' elevation

With elevations about 700' along Sand Ridge Road, this feature is too high to be Lake Warren (which is what is called on the Ohio Glacial Map), and too low to be Whittlesey. It is the right elevation to be called Arkona, but Arkona features were flooded by the subsequent rise in water level to Whittlesey, and this feature shows no evidence of water rehandling, so what is it? Note, too, that the ridge is higher here than back to the E or W-why?

As we leave Stop 1, note variation in height and strength of sand feature, and also how the road carefully follows it (as did earlier Indian trails, and even

mileage	
	older animal trails) high and dry above the old Black Swamp adjacent to low flat, clay-rich soils. Note the native black oak trees characteristically growing on the sand here.
9.2	Turn right (north) on Range Line Road. Note the flatness between this ridge and the more northern, broader and lower "ridge", and then the gently undulating surface where the route lies on broader northern "ridge".
10.2	Baldwin Woods to right, north of Euler Road, a small remnant of the original natural vegetation, only partly disturbed by man. This is an undeveloped parcel of the Wood County Park District with limited public access.
11.2	Turn right (east) on U.S. 6.
12.5	Wood County Landfill to left (north). This site is marked by about 4-5 feet of sand (part of the northern "ridge") (which is a problem only because it holds water and can make mud pies there on rainy days) over 50-60 feet of clay-rich till, lying on dolomite bedrock. This is a good landfill, with no reported leakage, but in some places (in Ohio, especially in Illinois, and probably elsewhere) pollution seems to be able to seep through even the finest of clayey tills.
14.0	Turn left, continuing straight, on Bowling Green Road, and then, almost immediately, turn left (north) onto Liberty Hi Road. Shortly after the turn, note the stand of black oaks off to the left identifying an area of sand (on this northern ridge"). Most of the land here is quite flat, but thin sand, in broad blankets and local thinner smears, are common. With the clay-rich till soil below or at the surface, and the very extensive flat land, the challenge to farmers and rural home-owners is how to drain water from their land - how would you do it?
17.2	Turn left (west) on Kellogg Road. Note extensive flat land here.
18.8	Turn right (north) onto Tontogany Road, just beyond sign saying "Welcome to Tontogany".
19.8	Turn left (west) on Opperman Road, passing Tontogany cemetery on left.
20.0	Stop. Turn right (north) onto Tontogany Creek Road, which here lies on high floodplain. Road winds and varies in height, from down near stream level to up on flat, poorly drained Black Swamp plain.
21.8	Note house built on the floodplain of Tontogany Creek on left. So far it has not been flooded, but flood waters have completely surrounded it on occasion. They are lucky that the watershed of this little creek is so limited, so potentially damaging floods would be rare.

mileage	
22.1	**STOP 2.** Tontogany Creek is undermining this high bank in two places, on either side of a house on the left. Is the house in danger? Note that the solution of the county has been to add cement slabs at the top of the eroding bank; it being too difficult to add support at the bottom of the slope here. What will be the effect of the added weight on top? Will it help? Notice the tilted trees just downstream.
22.2	Stop, then continue straight ahead (north) where Ohio Route 582 joins Tontogany Creek Road.
22.6	Junction of Ohio Routes 582 and 65, turn right (east) on Route 65. Note Volmar's recreation site down by the Muamee River here, on the river's floodplain. Volmar's has been intensely flooded several times in the past. In late February, 1997 it was underwater.
23.6	Bowling Green's water treatment plant is on the right, with the intake from the Maumee River on the left (square box-like building).
24.3	Very straight secondary road coming in from back to the right lies on the old right-of-way of the interurban line. It leads to the massive cement remains of the bridge used by this interurban, which we will see at Stop 3.
24.6	Long abandoned Silurian dolomite quarry partly hidden by vegetation, occurs in little valley on left.
25.0	At the bottom of the hill ahead are two interesting houses on left. First is a house with an impressive solar setup. Just beyond it is a house built on the floodplain, but raised on stilts, with just a garage on the bottom floodable level. The stilts used to be visible, but the lower level has now been enclosed.
25.8	Ohio Route 65 merges with Ohio Route 64 - turn left, as road bends to conform to river cut bank.
26.1	House on right is made of local dolomite perhaps obtained from a local quarry or from the abundant rock outcrops along the bed of the Maumee River below the bridge we will soon cross.
26.2	Turn left (west) following Ohio Route 64 across the Maumee River and into Waterville. Note rock bottom in river channel on far side, and shrubs in the river shallows still bent over from the force of recent high water.
26.6	At the first traffic light in Waterville, turn left (west) onto River Road. High flood levels reach up to the backs of houses on left side of road. Ahead, a fairly steep rise in the land to the right underlain by dolomite, probably represents the rocky bank of the river at a time when the bottom of the valley being formed occurred at the level of the road.

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27.8 **STOP 3** Roche de Boeuf, the knob of Tymochtee Dolomite forming one of the piers of the interurban bridge, was a Native American meeting place and a landmark to river travelers. The Ottawa people once had a village about where we are standing. In 1907 the Lima and Toledo Traction Company began construction of the concrete arch bridge, which upon completion was toted as the longest in the U.S. Interurbans traveling between Toledo and Cincinnati passed over this bridge until 1939 when the line was abandoned.

Across River Road and U.S. 24 is the Waterville quarry of the France Stone Company. The Silurian Bass Islands Group forms the uppermost part of the highwall underlain by Tymochtee and Greenfield dolomites.

The small zone of riffles, slightly upstream of the interurban bridge approximates the trace of the Bowling Green Fault which stretches from here to near Bowling Green. Movement along this fault zone has long since quelled, but earlier in geologic time, long before the Maumee River the mass of rock now downstream of the fault uplifted while that upstream dropped. Earthquakes once shook what would become the lower Maumee Valley.

We will descend to the level of the river through the eastern edge of Farnsworth Metro Park. On the way we'll pass through a long abandoned quarry. Some of the stone from here may have been used in canal construction and certainly provided foundation material for many early structures of the area.

Following a trail along the shore, downstream, brings us to some excellent exposures of the Tymochtee Formation. The lower beds show prominent crossbedding and ripple marks, remnants of ancient filling of channels cut into tidal flats of Late Silurian time. Fossils are scarce here for few plants and animals could tolerate the higher salinity. You may find a few algal structures, recognized by wavy bedding and dark laminae. Other evidence of periodic exposure and shallow evaporitic environments includes scattered dessication cracks, gypsum nodules, and halite molds. See what you can find. Also note how higher levels of the Maumee have undercut the bank,

30.3 Return to vehicles and follow River Road and U.S. 24 west. Turn right (north) onto Noward Road

Just before junction with Ohio Route 64, note stone pillars of Devonian limestone and dolomite on left. A number of small quarries lie behind the houses here.

33.5 Turn left (west) onto Ohio Route 64.

35.5 Turn left (south) on Providence Road in center of Whitehouse. We just passed an abandoned quarry on the right.

mileage

36.0 Turn left (east) into Whitehouse city park/old quarry.

STOP 4 Whitehouse Quarry.
Quarrying has been an important industry in this area since the mid 1800s when the town was plotted along the Wabash railroad. We are now on the west side of the Findlay Arch in an area of Devonian bedrock. Quarries provided blocky stone for foundations (Lucas Dolomite and Dundee Limestone) and slabby stone (Dundee Limestone) for fences, facework, and retaining walls. The Dundee Limestone is now largely underwater here and fenced in, however, blocks of this very fossiliferous unit abound in dump piles. Look for brachiopods, colonial corals, horn corals, snails, and straight-shell cephalopods. The rock is relatively hard. **Please use care when pounding - Use eye protection! Please stay off high dump piles.**

Leaving stop, turn left (south) on Providence Road

36.8 Turn left (east) onto Stiles Road

37.1 Turn right (south) onto Schadel Road

37.4 **STOP 5** Turn left into Quarry Pond Farm & Blue Creek Wetlands
Just below the picnic area is the waterfilled quarry of the closed Toledo House of Corrections. Here prisoners used to quarry slabs of Dundee Limestone for sale as garden, patio, and fence stone. Note the well developed glacial striae along the quarry margins. What direction(s) did the icesheets come from?

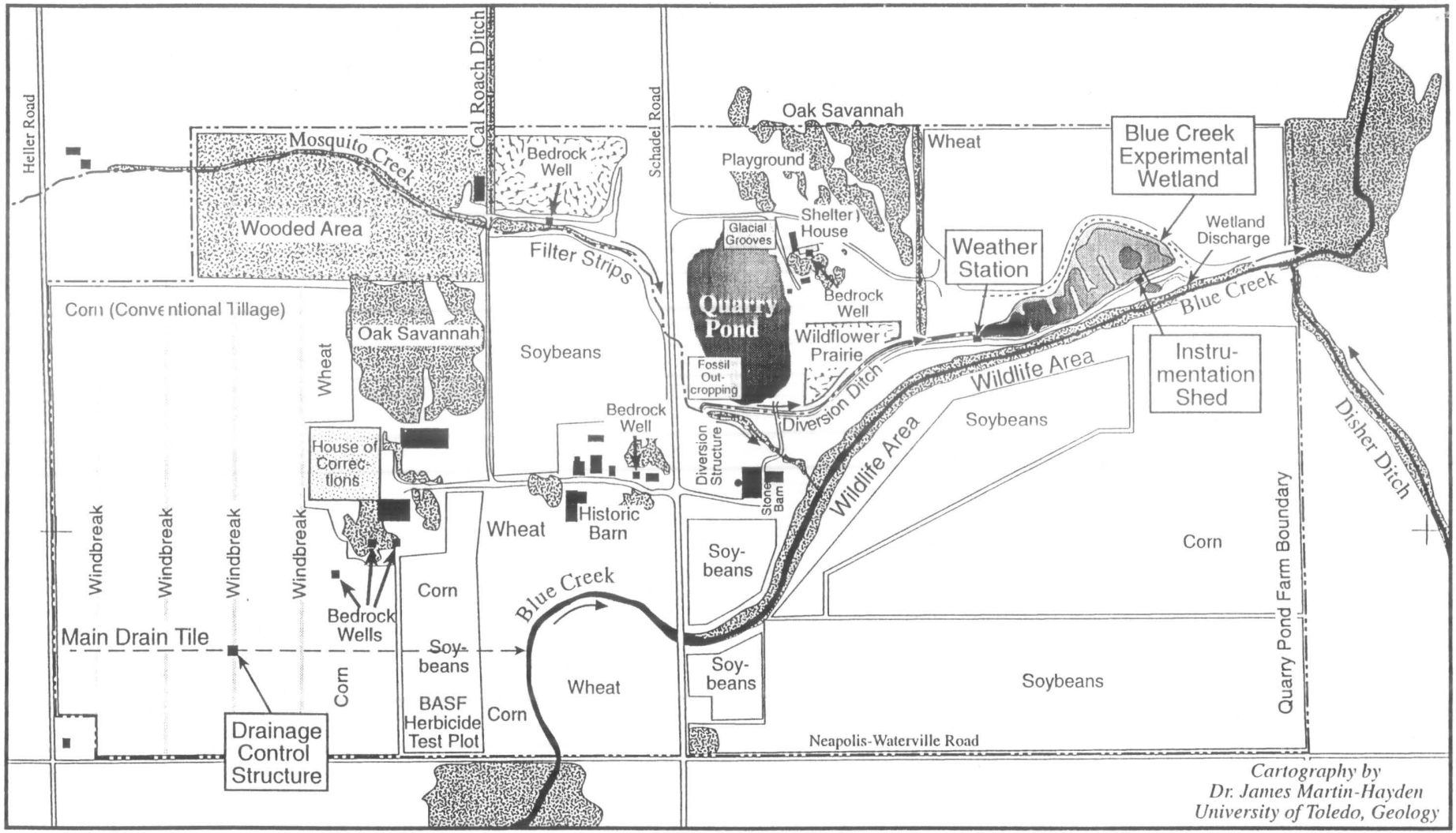
LUNCH STOP

The Blue creek wetland was constructed in order to determine the effectiveness of small seasonal wetlands in degrading or removing pesticides and excess fertilizers from agricultural runoff. A portion of the agricultural runoff from Mosquito Creek, which use to discharge directly to Blue Creek, is now diverted to the wetland and passes through the wetland. While passing through the wetland the contaminants are removed, transformed and degraded by various biological, geochemical, and geological processes. Piezometers, weirs and a weather station are being installed to monitor the hydrological interactions of the wetland with the geological setting and the water and sediments are being tested to characterize the fate of contaminants within the artificial wetland setting.

Leave Blue Creek Wetland and turn N (right) onto Schadel Road

37.4 Turn left (west) onto Stiles Road

37.7 Turn right (north) onto Providence Road



Summer 1995

N

1000 500 0 1000 ft

Scale = 1:7524

Quarry Pond Farm

Research and Education Center

Programs Coordinated by
Lucas Soil and Water
Conservation District
and The University of Toledo

mileage

39.0 Center of Whitehouse; continue straight ahead.

39.3 Turn diagonally left (west), following Ohio Route 64. Log cabin at right is original, but was moved here by the Historical Society. Farther ahead, note change from flat, open land to gently undulating wooded land of Oak Openings.

40.5 Turn right (north) onto Berkey Southern Road, Ohio Route 295.

41.7 Turn left (west) onto Reed Road, entering Oak Openings Metro Park.

STOP 6 Oak Openings

42.3 A broad band of sand lies on top of the glacial and lake sediments from the Maumee Valley to near Detroit, an area called the Oak Openings. The sand was carried into this area in the shallows of predecessor lakes to Lake Erie all higher than present Lake Erie. Later, as lake levels lowered, the sand was redistributed and shaped by wind. Swamp forests formed in poorly drained hollows between dunes. Remember relatively impermeable clays underlie all this sand. The better drained dunes and ridges became sites of patchy oak forests, thus the name - Oak Openings.

Turn right (north) on Wilkins Road. Follow Wilkins Road to junction with U.S. 2 (Airport Highway). Turn left (east) and follow U.S. 2 to interchange with U.S. 23/I-475. Follow I-475 south and east to Ohio Route 25. Proceed south on Rt 25 to Bowling green or elsewhere.

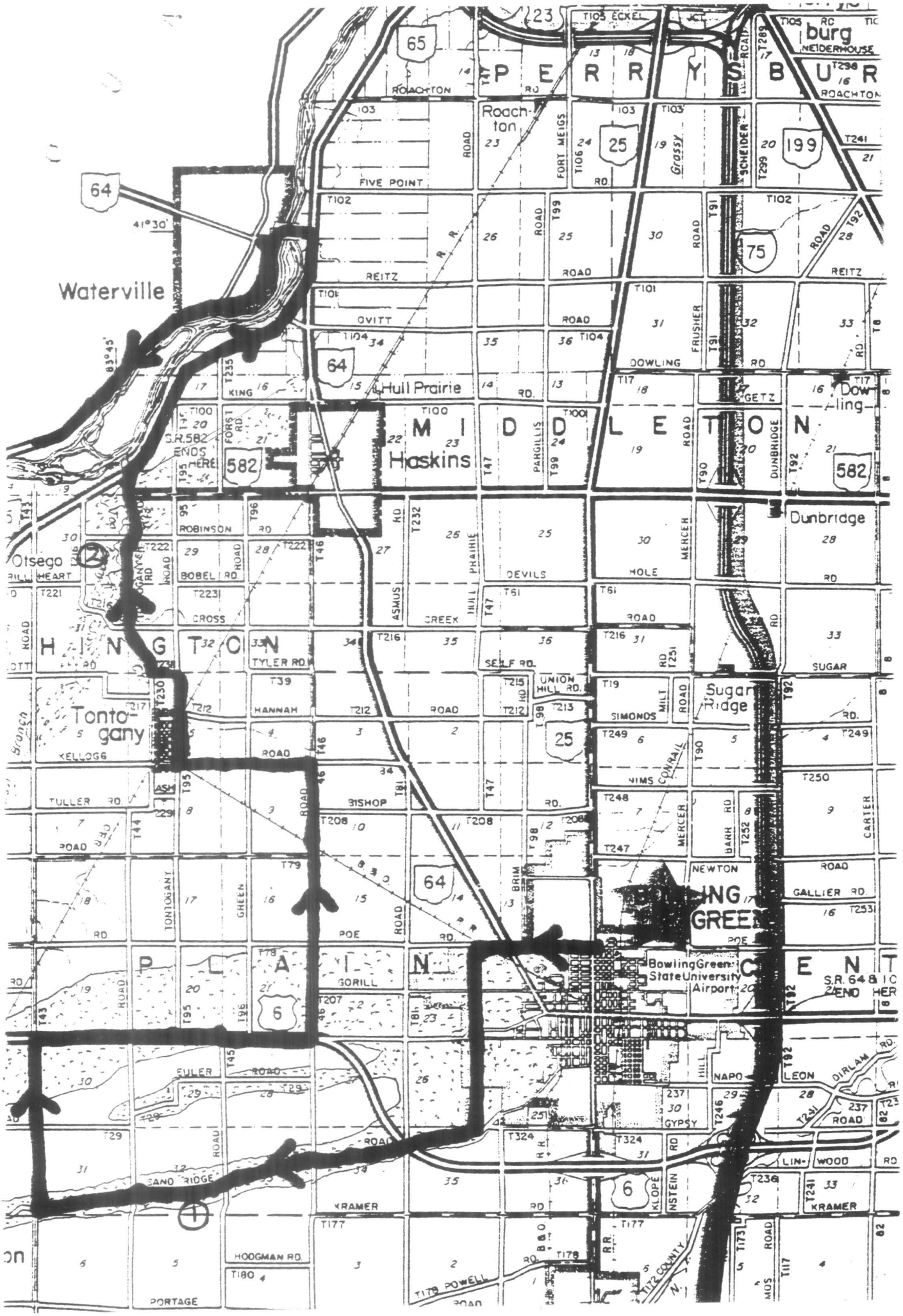
OPTIONAL STOP

Follow Ohio Rt. 295 north to Central Ave. (U.S. 20). Turn right (east) on Central. Turn left (north) on Centennial Road.

STOP 7 Dike of Devonian Silica Shale Dumpings

Although the many quarries in this area remain generally inaccessible, this is an excellent place to obtain fossil specimens. It's just that the stratigraphy is a little mixed up.

Return to Central Ave. Turn left and proceed to interchange with I-475.


Waterville
Roachton
Hull Prairie
Haskins
Middleton
Dunbridge
Otsego
Tontogany
Sugar Ridge
Bowling Green
State University
Airport
Perrysburg
Five Point
Reitz
Ovitt
Dowling
Getz
Bobel Rd.
Cross
Tyler Rd.
Hannah
Kellogg
Tuller Rd.
Bishop
Poe
Gorill
Euler
Sand Ridge
Kramer
Hoodman Rd.
Portage
Self Rd.
Union Hill Rd.
Simonds
Nims
Newton
Gallier Rd.
Napo
Leon
Dirlam
Gypsy
Lin-wood
Klopf
Nstein
Devils Hole
Mercer
Dunbridge Rd.
Sugar Rd.
Carter
Barr Rd.
Fort Meigs Road
Scheider Road
Frusher Road
Pargillis Road
Asmus Prairie Hill Creek
Bronco Creek
Tontogany Creek
Green Road
Brim Road
Hill Road
Conrail
Mus Road
Tiffin County
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41°30'
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64
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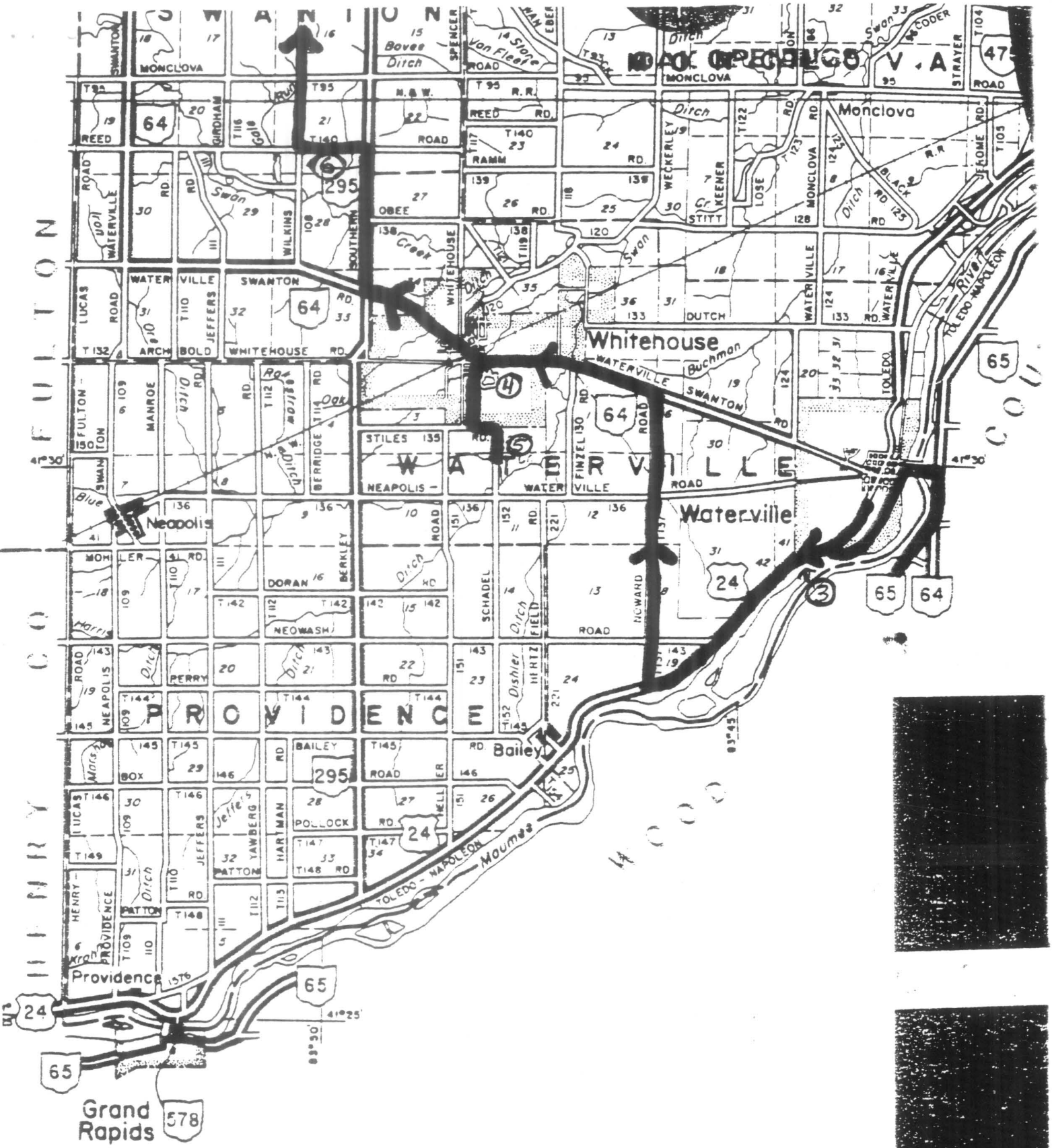
199


Monclova
Whitehouse
Waterville
Neapolis
Providence
Bailey
Grand Rapids
Toledo - Napoleon
Maumee River
Swanton
Fulton Co.
Lucas Co.
Henry Co.
Wood Co.
Monclova
Swanton
Waterville
Whitehouse
Neapolis
Providence
Bailey
Doran
Neowash
Stiles
Dutch
Ramm
Obee
Patton
Pollock
Yawberg
Jeffers
Bold
Arch
Manroe
Berkley
Schadel
Howard
Finzel
Keener
Stitt
Lose
Weckerley
Southern
Wilkins
Whitehouse
Waterville Swanton
Buchman
Toledo
Jerome
Strayer
Coder
Spencer
Van Fleet
Bowe
Ditch
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64
65
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295
578
47
Ohio
Michigan